

REMARKS/ARGUMENTS

Applicants appreciate the allowance of claims 8-10 and 26-28, and the indication that claims 3, 7, 16-18, 21, 25, and 34-36 contain allowable subject matter. Claims 7 and 25 have been re-written in independent form, including all of the limitations of their respective base claims and any intervening claims.

In paragraph 1 on page 2 of the Official Action, claims 12 and 15-18 were objected to for informalities. In reply, these claims have been amended to change “which includes” to “which further includes--.”

In paragraph 6 on page 3 of the Official Action, claims 1, 4, 11-15, 19, 22, and 29-33 were rejected under 35 U.S.C. 102(e) as being anticipated by Leach et al. (US Pat. 6,694,447). Applicants respectfully traverse. “For a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference.” Diversitech Corp. v. Century Steps, Inc., 7 U.S.P.Q.2d 1315, 1317 (Fed. Cir. 1988), quoted in In re Bond, 910 F.2d 831, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990) (vacating and remanding Board holding of anticipation; the elements must be arranged in the reference as in the claim under review, although this is not an *ipsis verbis* test).

With respect to claims 1 and 19, it is not seen where Leach et al. discloses: “making a snapshot copy of the secondary file system at the beginning of read/write access to the secondary file system, and ... when the primary site becomes operative ... using the snapshot copy to restore the primary file system to the state of the secondary file system existing when read/write access of the secondary file system was begun, and then writing into the primary file system the

changes made to the secondary file system during the read/write access to the secondary file system ...” so that recovery can be achieved as further recited in the claim. Page 4 of the Official Action says: “The asynchronous remote copy of changes is the point-in-time image.” However, Leach col. 7 lines 11-13 says: “Once the fail-over process is complete, the application runs on the secondary server 170 and updates the point-in-time storage volumes 190 as depicted in FIG. 6.” Therefore the updating of the point-in-time storage volumes 190 by the application changes the state in the point-in-time snapshot volumes 190 so that the state at the beginning of the read/write access to the secondary file system is not preserved in the point-in-time storage volumes 190 for use in recovering the primary file system. In a similar fashion, the running of the application on the secondary server 170 causes blocks to be modified on the secondary storage volumes, as described in Leach col. 7 lines 18-21: “The secondary storage volumes (Instant Image Master Volumes) 188, are updated using the fast resynchronization process as described above. During normal operation, blocks that have been modified on the secondary storage volume are noted via a scoreboard/bit map mechanism, contrary to the replication process of step 302.”

Nor does Leach disclose or need use of a snapshot copy of the secondary file system (at the beginning of read-write access to the secondary file system) for restoring the primary file system. Instead, Leach restores the primary file system using either a fast-resynchronization process or a full resynchronization from the secondary storage volumes 188 to the primary storage volumes 148 as described in col. 7 lines 50-57. “When the primary server’s disks associated with the primary storage volumes 148 are still intact from before the disaster, only a

fast resync, as described above, is required. Otherwise, a full resynchronization from the secondary storage volumes 188 to the primary storage volumes 148 is required.” (Col. 7, lines 52-57.) As described in Leach col. 6, lines 27-43, fast-resynchronization refers to a process that updates blocks as needed on a storage volume (e.g., blocks that have been modified on a source storage volume are immediately replicated to a target storage volume), in contrast to full-resynchronization in which all data of a storage volume are transferred. Thus, the scoreboard/bit map mechanism of Leach col. 7 lines 18-21 would be used to indicate what storage blocks should be transferred from the secondary storage volumes 188 to the primary storage volumes 148 for the fast resync during failback when the primary storage volumes 148 are still intact from before the disaster.

With respect to claims 4 and 22, it is not seen where Leach restores the primary file system to a state prior to the disruption of the primary server by the primary site keeping a list of blocks that have been changed in the primary file system during read/write access to the primary file system, and using the snapshot copy to restore the primary file system to the state of the secondary file system existing when read/write access of the secondary file system was begun by accessing the list of blocks that have been changed in the primary file system during the read/write access to the primary file system to determine the blocks that have been changed in the primary file system since said prior state of the primary file system. Paragraph 7 on page 4 of the Official Action cites Leach col. 6, lines 33-43 and col. 7, lines 39-67. It is not seen where these passages disclose the method of applicants’ claim 4. Leach col. 6, lines 33-43 simply describes replication, fast-resynchronization, and full-resynchronization. Leach col. 7, lines 39-

67 describes fail-back in which “data is resynchronized from the secondary storage volumes 188 to the primary storage volumes 148 of the primary server 130. When the primary server’s disks associated with the primary storage volumes 148 are still intact from before the disaster, only a fast resync, as described above, is required. Otherwise a full resynchronization from the secondary storage volumes 188 to the primary storage volumes 148 is required.” Leach’s fail-back using a fast resync presumes that the state of the primary storage volumes 148 at the time of the disaster is the same as the state of the secondary file system existing when read/write access of the secondary file system was begun. Moreover, the applicant’s method (of accessing the list of blocks that have been changed in the primary file system during the read/write access to the primary file system to determine the blocks that have been changed in the primary file system since said prior state of the primary file system) avoids a need for a full resync to restore the primary file system to a prior state.

With respect to applicants’ claims 11 and 29, Leach is distinguished for the same reasons as given above for claim 4. Paragraph 8 on page 5 of the Official Action again cites Leach col. 6, lines 33-43 and col. 7, lines 39-67. These passages fail to disclose “the primary file system being restored by determining from the list the data blocks that have been changed in the primary file system since the restart point” so that these blocks as they existed at the restart point are obtained from the secondary site and written into the primary file system. Leach’s fail-back using a fast resync presumes that the state of the primary storage volumes 148 at the time of the disaster is the same as the state of the secondary file system existing when read/write access of

the secondary file system was begun, instead of a prior state at a restart point. The applicants' method avoids the need for a full resync to restore the primary file system to a prior state.

With respect to applicants' claims 15 and 33, it is not seen where Leach further discloses "once the primary site is operative and after writing into the primary file system the data existing at the time of the restart point in the data blocks that have been changed in the primary file system since the restart point, writing the changes made to the secondary file system since the restart point into the primary file system" (claim 15) or "the primary data storage system is programmed for writing into the primary file system the data existing at the time of the restart point in the data blocks that have been changed in the primary file system since the restart point and then writing the changes made to the secondary file system since the restart point into the primary file system" (claim 33). Leach's fail-back using a fast resync writes into the primary file system changes made to the secondary file system since the restart point, which is presumed to be the state of the primary storage volumes 148 at the time of the disaster, without writing into the primary file system the data existing at the time of the restart point in the data blocks that have been changed in the primary file system since the restart point. Leach's fail-back using full resync simply writes all data of the secondary file system to the primary file system so there is no disclosure of first writing to the primary file system the data existing at the time of the restart point and then writing to the primary file system the changes made to the secondary file system since the restart point.

In paragraph 20 on page 11 of the Official Action, claims 2 and 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Leach et al. in view of Martin et al. (U.S. Pat.

6,015,501). Applicants respectfully traverse. Claims 2 and 20 are dependent upon claims 1 and 19, respectively, and therefore incorporates by reference the limitations of claims 1 and 19 by virtue of 35 U.S.C. 112, fourth paragraph. Leach et al. fails to disclose certain limitations of claims 1 and 19 as set out above, and Martin et al. also fails to disclose these limitations. Where the prior art references fail to teach a claim limitation, there must be “concrete evidence” in the record to support an obviousness rejection. “Basic knowledge” or “common sense” is insufficient. *In re Zurko*, 258 F.3d 1379, 1385-86, 59 U.S.P.Q.2d 1693, 1697 (Fed. Cir. 2001).

In paragraph 21 on page 12 of the Official Action, claims 5 and 23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ohran (U.S. Pat. 6,941,490) in view of Wikipedia. (file system). In response, claims 5 and 23 have been canceled.

In paragraph 23 on page 15 of the Official Action, claims 6 and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ohran in view of Wikipedia in further view of Martin et al. In response, claims 6 and 24 have been canceled.

In view of the above, reconsideration is respectfully requested, and early allowance is earnestly solicited.

Respectfully submitted,



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